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| IDENTIFIERS | *Missouri |

ABSTRACT

This index was developed to help building trades instructors in Missouri use existing instructional materials and keep track of student progress on the VAMS system. The list was compiled by a committee of instructors who selected appropriate references and identified areas that pertained to Missouri competencies. The index lists competencies in these 11 areas: basic skills; planning for construction; preparing the building site; building and installing forms; floor layout and framing; wall layout and framing; roof layout and framing; installing roofing components; installing exterior finishes; installing interior finishes; and assembling and constructing stairs. Each competency is then listed in a matrix that identifies where it appears in one or more of the six text references and one videotape set selected to be used in the course. (KC)

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# COMPETENCY INDEX

## for Building Trades programs in Missouri

A crosswalk of selected instructional materials against

Missouri's competency profile

Instructional Materials Laboratory
University of Missouri-Columbia

June 1990

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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## ABOUT THE PROJECT

This project should help building trades instructors use existing curriculum materials and keep track of student progress on the VAMS system. A committee of eight instructors selected appropriate references and identified areas that pertained to Missouri competencies. Instructors desiring program certification by the Associated General Contractors may wish to add activities to the AGC areas of specialization.

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## KEY TO REFERENCES USED FOR THE CROSSWALK

| | |
|---|---|
| IML, 1982 | Dailey, H. E., and John McMickle. Building Trades (instructor's guide). Vol. I and II. University of Missouri-Columbia: Instructional Materials Laboratory, 1982. |
| IML Suppl. Units, 1987 | Building Trades (supplemental units). University of Missouri-Columbia: Instructional Materials Laboratory, 1987. |
| Modern Carpentry, 1987 | Wagner, Willis H. Modern Carpentry. South Holland, IL: The Goodheart-Willcox Company, Inc., 1987. |
| AGC Fundam. of Carp. | Hendrix, Laborn J. "Bud". Fundamentals of Carpentry. Washington, D.C.: Associated General Contractors of America; Stillwater, OK: Curriculum and Instructional Materials Center, 1985. |
| AGC Resid. Carp. | Hendrix, Laborn J. "Bud". Residential Carpentry. Washington, D.C.: Associated General Contractors of America; Stillwater, OK: Curriculum and Instructional Materials Center, 1985. |
| AGC Com. Carp. | Hendrix, Laborn J. "Bud". Commercial Carpentry. Washington, D.C.: Associated General Contractors of America; Stillwater, OK: Curriculum and Instructional Materials Center, 1986. |
| SFCC AVs | Building trades/carpentry videotapes (1/2" VHS). Sedalia, Mo.: The Media Center, State Fair Community College, 1988-1989. |

**ADVISORY COMMITTEE MEMBERS**

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Platte Co. AVTS

Robert Jewett
Columbia Area Career Center

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Saline Co. AVTS

James Mikulin
Cass County AVTS

Kevin Peterman
Nevada AVTS

Glen Smith
Lex La-Ray Technical Center

John Spires
East Central College

Samuel Wright
N.S. Hillyard Tech. School

Judith Moore
Industrial Education, Department of Elementary and Secondary Education

Diane Davis
Instructional Materials Laboratory

# COMPETENCY LIST

**A. Basic Skills**

1. Demonstrate good safety practices
2. Identify and use measuring and layout tools
3. Read a rule
4. Identify proper use of power and hand tools
5. Identify and use nails and fasteners
6. Use pneumatic tools safely
7. Estimate square feet
8. Estimate linear feet
9. Estimate cubic feet
10. Construct scaffolding
11. Identify methods and materials for thermal insulation
12. Identify types and qualities of exterior protective coatings
13. Identify purposes of building codes, zoning laws and building permits

**B. Planning for Construction**

1. Read and interpret working drawings
2. Interpret blueprint symbols
3. Identify the steps of the building process
4. Estimate labor costs
5. Identify grades of lumber and plywood
6. Organize building materials

**C. Preparing the Building Site**

1. Use Builder's level
2. Establish elevation reference points from Bench Mark
3. Lay out building

**D. Building and Installing Forms**

1. Construct footing forms
2. Install keyway for footing and foundation
3. Erect plywood panel wall forms
4. Erect manufactured wall forms
5. Construct concrete stair forms
6. Construct box for specified (special) openings
7. Strip forms
8. Lay out and install anchor bolts in concrete
9. Install bulkhead
10. Install expansion and contraction joint
11. Set screeds
12. Waterproof foundation
13. Build and install forms for horizontal concrete

**E. Floor Layout and Framing**

1. Install termite shield
2. Install lally post
3. Install beam
4. Install sill plate and sealer
5. Construct sill box
6. Install floor joists
7. Frame floor opening
8. Install subfloor
9. Install cross-bridging

**F. Wall Layout and Framing**

1. Construct corner post
2. Construct partition studs
3. Frame openings
4. Install diagonal bracing (wind brace)
5. Align and brace wall
6. Install backing for hanging fixture and cabinet
7. Install exterior wall sheathing
8. Install metal studs

**G. Roof Layout and Framing**

1. Install ceiling joists
2. Install ridgeboard
3. Lay out, cut and install common rafters
4. Install roof trusses
5. Lay out, cut and install hip rafters
6. Lay out, cut and install valley rafters
7. Lay out, cut and install tail rafters
8. Lay out, cut and install cripple jack rafters
9. Lay out, cut and install hip jack rafters
10. Lay out, cut and install valley jack rafters
11. Frame dormers
12. Lay out, cut and install gable studs
13. Construct intersecting gable roof
14. Apply roof sheathing
15. Install collar beams
16. Frame roof openings
17. Lay out, construct and install knee wall
18. Construct box cornice
19. Construct rake cornice

**H. Installing Roofing Components**

1. Install roofing felt
2. Install chimney flashing
3. Install step flashing
4. Install valley flashing
5. Install roof vent
6. Install drip cap
7. Install skylight
8. Install composite strip shingles
9. Install composite shingles in valley
10. Install composite shingles around roof opening
11. Install shingles over dormer or roof appendage
12. Install composite shingles on ridge cap
13. Install ridge vent
14. Install wood shingles or shakes
15. Install wood shingles or shakes in valley
16. Install wood shingles or shakes around roof openings
17. Install wood shingles or shakes on ridge cap





**I. Installing Exterior Finishes**

1. Install wood jamb window unit
2. Install exterior door jamb
3. Case exterior opening
4. Hang exterior door
5. Install weatherstripping
6. Install pre-hung exterior door
7. Install drip cap
8. Install wood louvers
9. Install metal or vinyl siding
10. Install wood siding
11. Install wood shingles/shakes on walls
12. Install metal or vinyl soffit
13. Install wood soffit
14. Install metal or vinyl fascia
15. Install wood fascia
16. Construct and install column
17. Install prefabricated column
18. Install prefabricated storm doors and windows
19. Install fixed exterior shutters
20. Apply caulk and glazing compounds
21. Install gutters
22. Install downspout (leader)
23. Install metal newel post and railing
24. Install wood newel post, balusters and railings
25. Lay out, cut and install porches and decks

**J. Installing Interior Finishes**

1. Install underlayment over subfloor
2. Install parquet flooring
3. Install plank flooring
4. Install tongue and groove flooring
5. Install batt insulation
6. Install vapor barrier
7. Hang drywall (gypsum) over wood or metal studs
8. Install interior door jamb
9. Trim interior doors

10. Trim interior windows
11. Case interior openings
12. Install prehung door unit (split jamb)
13. Install double-acting door
14. Install folding (accordion) door
15. Install sliding door
16. Install bi-fold door
17. Install pocket door
18. Install threshold
19. Install cylinder lock set
20. Install mortise lock set
21. Install deadbolt lock
22. Install door closer
23. Install flush bolt
24. Install door plate
25. Install door stops
26. Install shelving
27. Install closet accessories
28. Assemble prefabricated cabinets
29. Install wall cabinet
30. Install base cabinet
31. Install countertop and backsplash
32. Install medicine cabinet
33. Install wall paneling
34. Install baseboards
35. Install suspended T-grid ceiling
36. Install suspended concealed grid ceiling
37. Install ceiling molding
38. Install disappearing stair unit
39. Set metal window frame
40. Set metal door frame

**K. Assembling and Constructing Stairs**

1. Lay out, cut and install stringers
2. Install treads and risers
3. Construct box stairs
4. Install wood newel post, balusters and railing (handrail)
5. Install metal newel post and railing (interior newel post)
6. Install prefabricated stairs
7. Install skirtboard

| Competency | IML, 1982 (volume, unit, lesson) | IML Suppl. Units (SN), 1987 | Modern Carpentry, 1987 | AGC Fundam. of Carp. (sec.-unit) | AGC Resid. Carp. (section-unit) | AGC Com. Carp. (section-unit) | AGC '90 task list | SFCC AVs |
|---|---|---|---|---|---|---|---|---|
| A1 | I-I-4 | UII | U2 | A-V | | | covered | |
| A2 | I-II-1 | UV | U2 | B-II, D-I | | | covered | |
| A3 | I-II-2 | UV | | B-II | | | covered | |
| A4 | I-II-3 | UIII | U2-3 | C-I, C-II | | | covered | |
| A5 | I-II-4-6 | UIV | U1 | | | | covered | |
| A6 | | | | C-II | | | covered | |
| A7 | | UVII-IX | | B-I | | | covered | |
| A8 | | UV | | B-I | | | | |
| A9 | I-V-8 | | U6 | B-I | B-I | | covered | |
| A10 | | | U24 | C-III | | A-V | covered | |
| A11 | I-IX-1 | | U13 | | | C-I | | |
| A12 | I-VII-7 | | | | | | | |
| A13 | I-III-2 | | U5 | | | | | |
| B1 | I-III-1 | | U5 | B-III | | | covered | |
| B2 | I-III-1 | | U5 | B-III | | | covered | |
| B3 | I-III-4 | | U5 | | A-I | | covered | BT/C-85-100 |
| B4 | I-III-6 | | | | | | | |
| B5 | I-III-7 | | U1 | | | | covered | |
| B6 | | | | | | | | |
| C1 | I-IV-2 | | U4 | D-I, D-II | | | covered | |
| C2 | I-IV-3 | | U4 | D-I | | | covered | |
| C3 | I-IV-4 | | U6 | D-II | | A-III | covered | |
| D1 | I-V-1 | | U6 | | C-I | A-II | covered | |

| Competency | IML, 1982 (volume, unit, lesson) | IML Suppl. Units (SN), 1987 | Modern Carpentry, 1987 | AGC Fundam. of Carp. (sec.-unit) | AGC Resid. Carp. (section-unit) | AGC Com. Carp. (section-unit) | AGC '90 task list | SFCC AVs |
|---|---|---|---|---|---|---|---|---|
| D2 | I-V-1 | | U6 | | | A-II | covered | |
| D3 | I-V-3-4 | | U6 | | C-I | A-IV | covered | |
| D4 | I-V-5 | | U6 | | | A-V | covered | |
| D5 | I-V-6 | | U6 | | C-II | A-X | | |
| D6 | | | U6 | | C-I | A-VI | | |
| D7 | | | | | C-II | A-III thru VIII | covered | |
| D8 | | | U6 | | C-I | A-III thru VIII | covered | |
| D9 | | | | | C-I | A-III thru VIII | covered | |
| D10 | I-V-6 | | U6 | | | A-VIII | | |
| D11 | I-V-6 | | U6 | | | A-III thru VIII | | |
| D12 | | | U6 | | | | covered | |
| D13 | I-V-6 | | U6 | | C-II | A-VII | covered | |
| E1 | I-VI-1, 4 | | U7 | | D-I | | | |
| E2 | I-VI-1, 4 | | U7 | | | B-I | covered | |
| E3 | I-VI-1, 4 | | U7 | | D-I | B-I | covered | |
| E4 | I-VI-1, 4 | | U7 | | D-I | B-I | covered | |
| E5 | I-VI-1, 4 | | U7 | | D-I | B-I | covered | |
| E6 | I-VI-1, 4 | UVI | U7 | | D-I | B-I | covered | BT/C-85-110 |
| E7 | I-VI-2 | | U7 | | D-I | B-I | covered | |
| E8 | I-VI-3, 4 | UVI | U7 | | D-I | B-I | covered | |
| E9 | I-VI-1, 4 | | U7 | | D-I | B-I | covered | |
| F1 | I-VI-5-7 | UVI | U8 | | D-II | B-II | covered | BT/C-85-120, 130 |
| F2 | I-VI-5-7 | UVI | U8 | | D-II | B-II | covered | |

| Competency | IML, 1982 (volume, unit, lesson) | IML Suppl. Units (SN), 1987 | Modern Carpentry, 1987 | AGC Fundam. of Carp. (sec.-unit) | AGC Resid. Carp. (section-unit) | AGC Com. Carp. (section-unit) | AGC '90 task list | SFCC AVs |
|---|---|---|---|---|---|---|---|---|
| F3 | I-VI-5-7 | | U8 | | D-II | B-II | covered | BT/C-85-140 |
| F4 | I-VI-5-7 | | U8 | | D-II | B-II | covered | |
| F5 | I-VI-5-7 | UVI | U8 | | D-II | B-II | covered | |
| F6 | I-VI-5-7 | | U8 | | D-II | | | |
| F7 | I-VI-5-7 | | U8 | | E-III | B-II | covered | |
| F8 | | | U1 | | | B-VI | covered | |
| G1 | | | U8-9 | | D-II | B-II | covered | |
| G2 | I-VI-8-9 | | | | D-III | | covered | |
| G3 | I-VI-8-9 | | U9 | | D-III | B-III | covered | BT/C-85-150 |
| G4 | | | U9 | | D-III | B-IV | covered | BT/C-85-190 |
| G5 | I-VI-8-9 | | U9 | | D-III | B-III | covered | BT/C-85-160 |
| G6 | I-VI-8-9 | | U9 | | D-III | B-III | covered | BT/C-85-170 |
| G7 | I-VI-8-9 | | U9 | | D-III | B-III | covered | |
| G8 | I-VI-8-9 | | U9 | | D-III | B-III | covered | BT/C-85-180 |
| G9 | I-VI-8-9 | | U9 | | D-III | B-III | covered | |
| G10 | I-VI-8-9 | | U9 | | D-III | B-III | covered | |
| G11 | | | U9 | | D-III | | | |
| G12 | | | U9 | | D-III | | covered | |
| G13 | I-VI-8-9 | | U9 | | D-III | | covered | |
| G14 | | | U9 | | D-III | B-III | covered | |
| G15 | | | U9 | | D-III | | covered | |
| G16 | | | U9 | | D-III | | covered | |
| G17 | | | U9 | | | | | |

| Competency | IML, 1982 (volume, unit, lesson) | IML Suppl. Units (SN), 1987 | Modern Carpentry, 1987 | AGC Fundam. of Carp. (sec.-unit) | AGC Resid. Carp. (section-unit) | AGC Com. Carp. (section-unit) | AGC '90 task list | SFCC AVs |
|---|---|---|---|---|---|---|---|---|
| G18 | II-VII-5-6 | | U12 | | E-I | | covered | |
| G19 | | | U12 | | E-I | | covered | |
| H1 | II-VII-3-4 | UVII | U10 | | E-II | | covered | BT/C-87-194 |
| H2 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H3 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H4 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H5 | | | | | E-II | | covered | |
| H6 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H7 | | | U11 | | | | | |
| H8 | II-VII-3-4 | VII | U10 | | E-II | | covered | BT/C-87-194 |
| H9 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H10 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H11 | II-VII-3-4 | | U10 | | E-II | | | |
| H12 | II-VII-3-4 | | U10 | | E-II | | covered | |
| H13 | | | U13 | | | | | |
| H14 | II-VII-3-4 | | U13 | | E-II | | | |
| H15 | II-VII-3-4 | | U13 | | E-II | | | |
| H16 | II-VII-3-4 | | U13 | | E-II | | | |
| H17 | II-VII-3-4 | | U13 | | E-II | | | |
| I1 | II-VII-1-2 | | U11 | | E-IV | | covered | |
| I2 | II-VII-1-2 | | U11 | | E-V | | covered | BT/C-87-231 |
| I3 | II-VII-1-2 | | U11 | | E-V | | covered | |
| I4 | II-VII-1-2 | | U11 | | E-V | | covered | BT/C-87-230 |

| Competency | IML, 1982 (volume, unit, lesson) | IML Suppl. Units (SN), 1987 | Modern Carpentry, 1987 | AGC Fundam. of Carp. (sec.-unit) | AGC Resid. Carp. (section-unit) | AGC Com. Carp. (section-unit) | AGC '90 task list | SFCC AVs |
|---|---|---|---|---|---|---|---|---|
| I5 | II-VII-8-9 | | | | E-V | | covered | |
| I6 | II-VII-1-2 | | U11 | | E-V | C-IV | covered | |
| I7 | II-VII-1-2 | | U12 | | E-V | | covered | |
| I8 | | | U12 | | | | covered | |
| I9 | | VI | U12 | | | | | BT/C-87-232 |
| I10 | II-VII-6 | | U12 | | E-III | | covered | |
| I11 | II-VII-6 | | | | | | | |
| I12 | | | U12 | | | | | |
| I13 | | | U12 | | E-I | | covered | |
| I14 | II-VII-5-6 | | U12 | | | | | |
| I15 | II-VII-5-6 | | U12 | | E-I | | covered | |
| I16 | | | | | | | covered | |
| I17 | | | | | | | covered | |
| I18 | | | | | | C-IV | covered | |
| I19 | | | | | | | | |
| I20 | II-VII-9 | | | | | | | |
| I21 | II-VII-10-11 | | U10 | | | | | |
| I22 | II-VII-10-11 | | U10 | | | | | |
| I23 | | | | | | | covered | |
| I24 | | | | | | | covered | |
| I25 | | | | | | | covered | |
| J1 | II-IX-5 | | U15 | | | | covered | |
| J2 | | | U15 | | | | | |

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|---|---|---|---|---|---|---|---|---|
| J3 | | | U15 | | F-VI | | covered | |
| J4 | | | U15 | | F-VI | | covered | |
| J5 | II-IX-1 | | U13 | | F-I | | covered | |
| J6 | II-IX-1 | | U13 | | F-I | | covered | |
| J7 | II-IX-2-3 | VIII | U14 | | F-II | Sec. C UII | covered | |
| J8 | II-IX-4, 6 | | U17 | | F-IV | | covered | |
| J9 | II-IX-4, 6 | | | | F-IV | | covered | |
| J10 | II-IX-4, 6 | | U17 | | F-IV | | covered | |
| J11 | II-IX-4, 6 | | U17 | | F-IV | | covered | |
| J12 | | | U17 | | F-IV | | covered | |
| J13 | | | | | | | covered | |
| J14 | | | | | | | | |
| J15 | | | U11 | | F-IV | | covered | |
| J16 | | | | | F-IV | | covered | |
| J17 | | | U17 | | F-IV | | covered | |
| J18 | | | | | E-V | | covered | |
| J19 | | | U17 | | F-IV | C-IV | covered | |
| J20 | | | U17 | | F-IV | C-IV | covered | |
| J21 | | | U17 | | F-IV | | covered | |
| J22 | | | | | | | | |
| J23 | | | | | | | | |
| J24 | | | | | | | covered | |
| J25 | | | U17 | | | | covered | |

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|---|---|---|---|---|---|---|---|---|
| J26 | | | | | F-V | | covered | |
| J27 | | | | | F-V | | covered | |
| J28 | | | U18 | | F-V | | covered | |
| J29 | II-X-10 | | U18 | | F-V | | covered | |
| J30 | II-X-10 | | U18 | | F-V | | covered | |
| J31 | II-X-11-12 | | U18 | | F-V | | covered | |
| J32 | | | | | | | | |
| J33 | | | U14 | | F-III | | covered | |
| J34 | II-IX-4, 6 | | U17 | | | | covered | |
| J35 | | | U14 | | | | covered | |
| J36 | | | U14 | | | | | |
| J37 | II-IX-4 | | U17 | | | | covered | |
| J38 | | | U16 | | | | covered | |
| J39 | | | | | | | covered | |
| J40 | | | | | | C-IV | covered | |
| K1 | I-VI-10-11 | | U16 | | D-IV | | covered | BT/C-87-195 |
| K2 | II-IX-7 | | U16 | | D-IV | | covered | BT/C-87-196 |
| K3 | | | U16 | | D-IV | | covered | BT/C-87-197 |
| K4 | II-IX-7-8 | | U16 | | | | covered | |
| K5 | | | U16 | | | | covered | |
| K6 | | | U16 | | | | | |
| K7 | II-IX-7 | | U16 | | | | covered | |